AERIAL CABLE PLANT ASSEMBLY UNITS

Contents

1. GENERAL

1.01 This section is intended to provide REA borrowers, consulting engineers, contractors, and other interested parties with technical information for use in the design and construction of REA borrowers' telephone systems. It discusses in particular the assembly units that are designed to meet the various situations encountered in the construction of aerial cable plant.

1.02 This document cancels REA TE and CM-645, Issue No. 3, dated June 1956. A new number has been assigned to the subject and the word "Aerial" added to the title. The intent is to provide information on aerial cable assembly units in conformity with the issue of the Telephone System Construction Contract, REA Form 511, dated November 1960.

1.03 Some changes were made in the assembly units provided for in this latest issue of REA Form 511. The pole mounted cable terminal assembly units were deleted, which are no longer acceptable for use in telephone systems of REA borrowers.

1.04 In the construction of a telephone system several different cable plant assembly units usually are required to make a compl cable plant. The units have been established so that the

assemblies may be specified readily and combined as needed. In a few situations it may be necessary for the engineer to prepare guide drawings not provided herein, or in the applicable REA TE and CM sections, nor in REA Form 511, to illustrate the placement of specific assembly units.

2. AERIAL CABLE PLANT ASSEMBLY UNITS

2.01 Aerial cable plant assembly units are for cable which is supported by suspension strand attached to poles. REA TE and CM-630, "Design of Lashed Aerial Cable Plant," and REA TE and CM-635, "Construction of Lashed Aerial Cable Plant," provide information on this type of plant.

3. AERIAL CABLE PLANT ASSEMBLY UNITS NOT ILLUSTRATED IN REA FORM 511

3.01 Certain aerial cable plant assembly units are not illustrated in REA Form 511 nor in this section. These are defined in the "Description of Assembly Units" and the "Proposal and Contract Sections" of REA Form 511. They include certain of the following units:

a. Aerial Cable Assembly Units
b. Cable Splicing Assembly Units

3.02 The units in the above classes applicable to aerial cable plant, which are described in REA Form 511, include the following:

BM6M	-	Suspension Strand Assembly Unit
BM10M	-	Suspension Strand Assembly Unit
C	-	Aerial Cable Assembly Units
HA-L	-	Aerial Cable Splice Enclosure Assembly Unit
HC	-	Cable Splicing Assembly Unit
PG32-1	-	Loading Coil, Encapsulated (88, 66 or 44 mh)
PM20	-	Central Office Cable Entrance (Aerial)

4 AERIAL CABLE PLANT ASSEMBLY UNITS ILLUSTRATED IN REA FORM 511

n aerial cable plant assembly unit illustrations included in REA Form 511 are reproduced herein as Figures 1 to 16, inclusive, with their applications stated on the figures. These include the following:

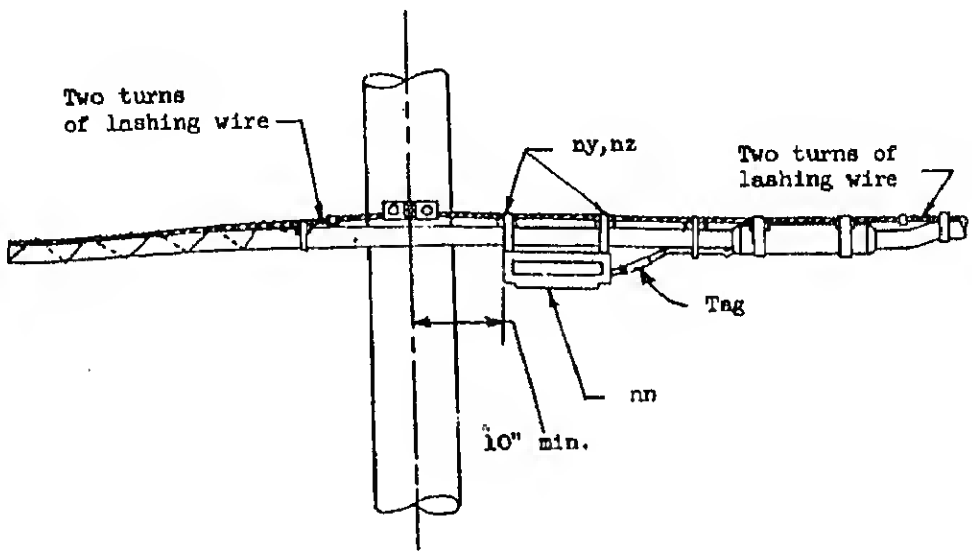
Figure

1 PG3-10, -11, -16, -26 Cable Terminals, Unprotected, With Stub, Strand Mounted

Figure		
2	PG3C-10, -11, -16, -20, -26	- Cable Terminals, Unprotected, Without Stub, Strand Mounted
3	PG4-10, -11, -16, -26	- Cable Terminals, Protected, With Stub, Strand Mounted
4	PG4C-10, -11, -16, -20, -26	- Cable Terminals, Protected, Without Stub, Strand Mounted
5	PG9-6, PG10-6, PG12-6	- Terminal Blocks, Protected and Unprotected
6	PG21-1, -2, -3, -4, -5	- Loading Coils, Cable, Splice Mounted
7	PG21-6, -11, -16, -20	- Loading Coils, Cable, Splice Mounted
8	PG22-15, -26, -51	- Loading Coils, Cable, Strand Mounted
9	PG22-50P, -75P, -100P, -125P, -150P	- Loading Coils, Cable, Strand Mounted
10	PG32-3, -12, -18, -25	- Loading Coils, Encapsulated (for mounting in HA-R ready-access enclosures)
11	HA-R1, -R2	- Ready-Access Enclosures, Strand Mounted (Types A and B)
12	HA-R5, -R6	- Ready-Access Enclosures, Strand Mounted (Types E and F)
13	PM4	- Cable Extension Arm Assembly (Short)
14	PM4A	- Cable Extension Arm Assemb (Long)
15	PM5	- Pole Stepping Assembly
16	PM52-1, -2	- Pole Marking

5. READY-ACCESS ENCLOSURE LOADING COIL CAPACITIES

5.01 The number of loading coil assembly units of the various sizes that can be placed in each type of ready-access enclosure is useful information in aerial cable layout work. The capacities of the four types of enclosures are given in Table I.



Note: 1. This unit includes splicing labor and materials.

2. Materials required to terminate lashing wire and support cable that are not indicated in materials list on this drawing are included in aerial cable assembly unit.

3. These terminals are equipped with paper-insulated cable stubs and are to be used with paper-insulated cables only.

USED ON AERIAL PAPER-INSULATED CABLE ONLY.

PG3-10 TERMINATES 10 PAIRS, UNPROTECTED. PG3-11 WITH 1 PAIR UNCONNECTED IS CONSIDERED EQUIVALENT.

PG3-11 TERMINATES 11 PAIRS, UNPROTECTED.

PG3-16 TERMINATES 16 PAIRS, UNPROTECTED.

PG3-26 TERMINATES 26 PAIRS, UNPROTECTED.

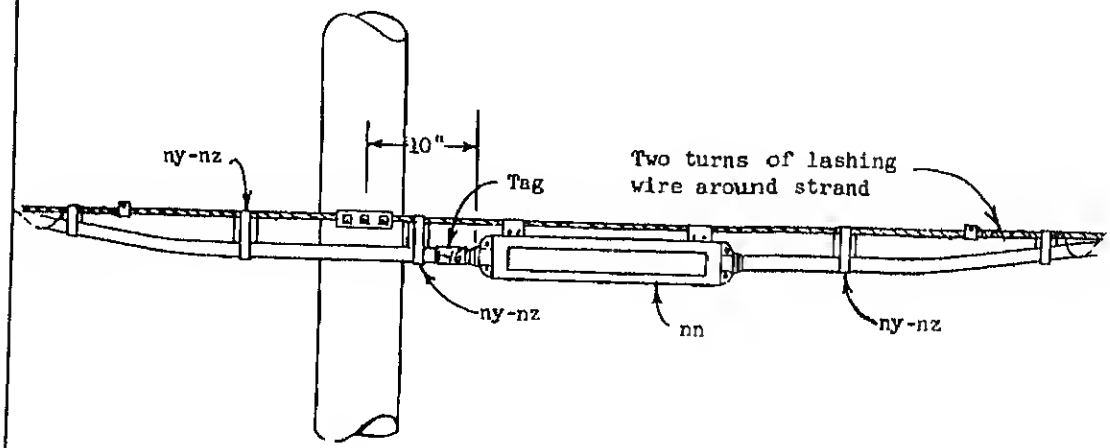
THE STUBS OF THESE UNITS HAVE LEAD SHEATHS.

RURAL TELEPHONE CONSTRUCTION PRACTICES

CABLE TERMINAL, UNPROTECTED, STRAND MOUNTED

Scale: NTS		September 9, 1960
		PG3-10, -11, -16, -26

Figure 1



Notes:

1. These units include splicing labor and materials.
2. Material required to terminate lashing wire and support cable that are not indicated in materials listed on this drawing are included in aerial cable assembly unit.
3. These units are to be used with paper-insulated cables and at junctions of paper-insulated to plastic-insulated cables only.
4. Where used at junctions of paper-insulated to plastic-insulated cables, this unit also includes the installation of a moisture block in accordance with REA Splicing Standard PC-3.
5. The PG3C-10, -11 and -16 units consist of a terminal section and one splice case (one-half of a splice enclosure) mounted in place. The terminal and splice case sections are ordered under separate catalog numbers.

USED ON AERIAL PAPER-INSULATED CABLE UP TO 1.6 INCH DIAMETER AS TERMINALS AND AT JUNCTIONS OF PAPER AND PLASTIC-INSULATED CABLES AS COMBINATION TERMINAL AND SPLICE POINT.

PG3C-10 TERMINATES 10 PAIRS, UNPROTECTED. PG3C-11 WITH 1 PAIR UNCONNECTED IS CONSIDERED EQUIVALENT.

PG3C-11 TERMINATES 11 PAIRS, UNPROTECTED.

PG3C-16 TERMINATES 16 PAIRS, UNPROTECTED

PG3C-20 TERMINATES 20 PAIRS, UNPROTECTED. REQUIRES USE OF TWO 10-PAIR TERMINALS PLACED BACK-TO-BACK.

PG3C-26 TERMINATES 26 PAIRS, UNPROTECTED. REQUIRES USE OF ONE 10-PAIR AND ONE 16-PAIR TERMINAL PLACED BACK-TO-BACK.

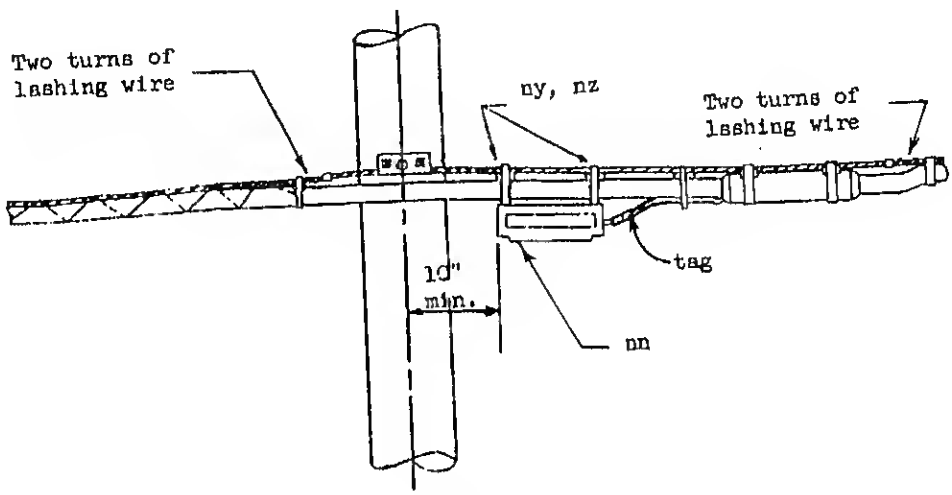
RURAL TELEPHONE CONSTRUCTION PRACTICES
CABLE TERMINAL, UNPROTECTED WITHOUT STUB, STRAND MOUNTED

Scale: NTS

August 24, 1960

PG3C-10, PG3C-11, PG3C-16, PG3C-20, PG3C-26

Figure 2



Notes:

1. This unit includes splicing labor and materials.
2. Materials required to terminate lashing wire and support cable that are not indicated in materials list on this drawing are included in aerial cable assembly unit.
3. These terminals are equipped with paper-insulated cable stubs and are to be used with paper-insulated cables only.

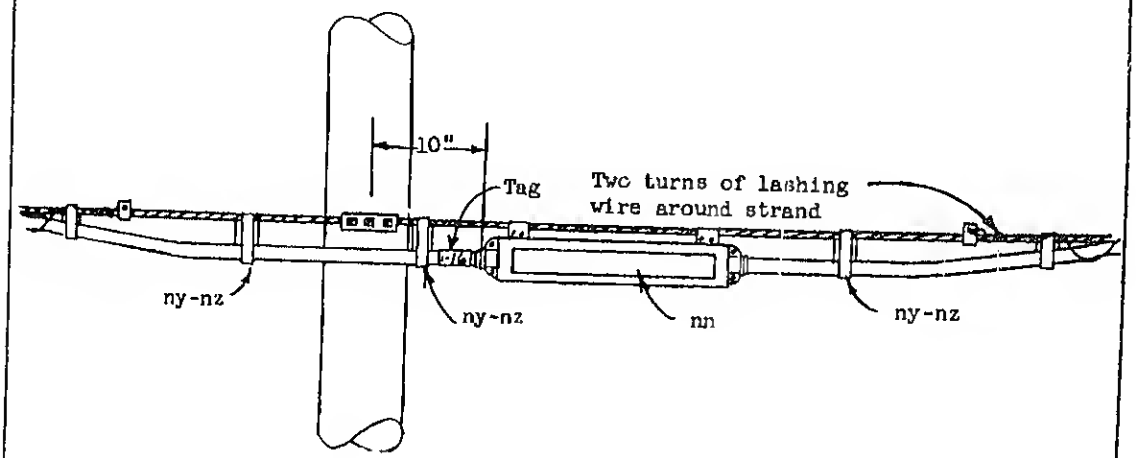
USED ON AERIAL PAPER-INSULATED CABLE ONLY.

PG4-10 TERMINATES 10 PAIRS, PROTECTED. PG4-11 WITH 1 PAIR UNCONNECTED IS EQUIVALENT.
PG4-11 TERMINATES 11 PAIRS, PROTECTED.
PG4-16 TERMINATES 16 PAIRS, PROTECTED.
PG4-26 TERMINATES 26 PAIRS, PROTECTED.
THE STUBS OF THESE UNITS HAVE LEAD SHEATHS.

RURAL TELEPHONE CONSTRUCTION PRACTICES
CABLE TERMINAL, PROTECTED, STRAND MOUNTED

Scale: NTS		September 9, 1960
		PG4-10, -11, -16, -26

Figure 3



Notes:
1. These units include splicing labor and materials.
2. Material required to terminate lashing wire and support cable that are not indicated in materials listed on this drawing are included in aerial cable assembly unit.
3. These units are to be used with paper-insulated cables and at junctions of paper-insulated to plastic-insulated cables only.
4. Where used at junctions of paper-insulated to plastic-insulated cables, this unit also includes the installation of a moisture block in accordance with REA Splicing Standard PC-3.
5. The PG4C-10, -11 and -16 units consist of a terminal section and one splice case (one-half of a splice enclosure) mounted in place. The terminal and splice case sections are ordered under separate catalog numbers.

USED ON AERIAL PAPER-INSULATED CABLE UP TO 1.6 INCH DIAMETER AS TERMINALS AND AT JUNCTIONS OF PAPER AND PLASTIC-INSULATED CABLES AS COMBINATION TERMINAL AND SPLICE POINTS

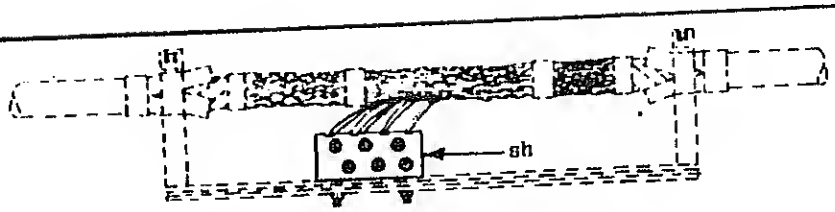
PROTECTED. PG4C-11 WITH 1 PAIR UNCONNECTED

[illegible], PROTECTED. REQUIRES USE OF TWO 10-PAIR TERMINALS PLACED BACK-TO-BACK.

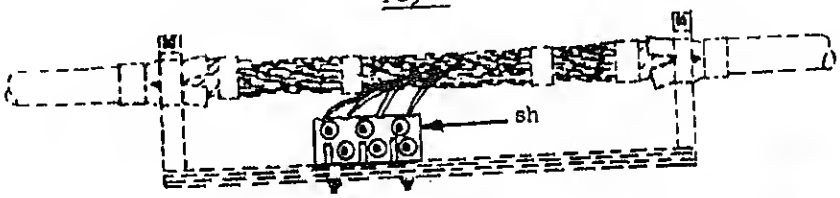
PG4C-26 TERMINATES 26 PAIRS, PROTECTED. REQUIRES USE OF ONE 10-PAIR AND ONE 16-PAIR TERMINAL PLACED BACK-TO-BACK.

	RURAL TELEPHONE CONSTRUCTION PRACTICES CABLE TERMINAL, PROTECTED, WITHOUT STUB, STRAND MOUNTED	
	Scale: NTS	August 24, 1960
		PG4C-10, PG4C-11, PG4C-16, PG4C-20, PG4C-26

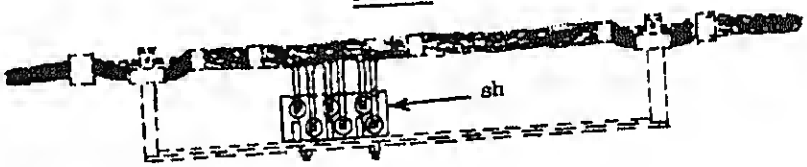
Figure 4



PG9-6



PG10-6



PG12-6

Notes:

1. Each PG9-6 and PG10-6 assembly unit includes tbe terminal block mounted in place in a ready-access enclosure (HA-R assembly unit separately specified) and spliced to the cable conductors in accordance witb the instructions in REA Splicing Standard PC-2.

2. Each PG12-6 assembly unit includes the terminal block mounted in place in a ready-access enclosure (HA-D assembly unit separately specified) and connected to the conductors of the multipair distribution wire in accordance with the method shown on Guide Drawing 312.

PG9-6 SIX-PAIR TERMINAL BLOCK, UNPROTECTED, WITH LEADS, USED FOR TERMINATING UP TO SIX AERIAL DISTRIBUTION WIRE PAIRS OR AERIAL PLASTIC-INSULATED CABLE PAIRS IN READY-ACCESS ENCLOSURES, WHERE PROTECTION IS NOT REQUIRED.

PG10-6 SIX-PAIR TERMINAL BLOCK, PROTECTED, WITH LEADS. USED FOR TERMINATING UP TO SIX AERIAL DISTRIBUTION WIRE PAIRS OR AERIAL PLASTIC-INSULATED CABLE PAIRS IN READY-ACCESS ENCLOSURES WHERE PROTECTION IS REQUIRED.

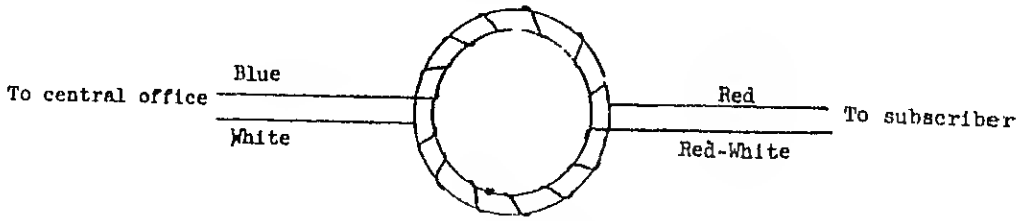
PG12-6 NOT APPLICABLE IN CABLE PLANT.

RURAL TELEPHONE CONSTRUCTION PRACTICES

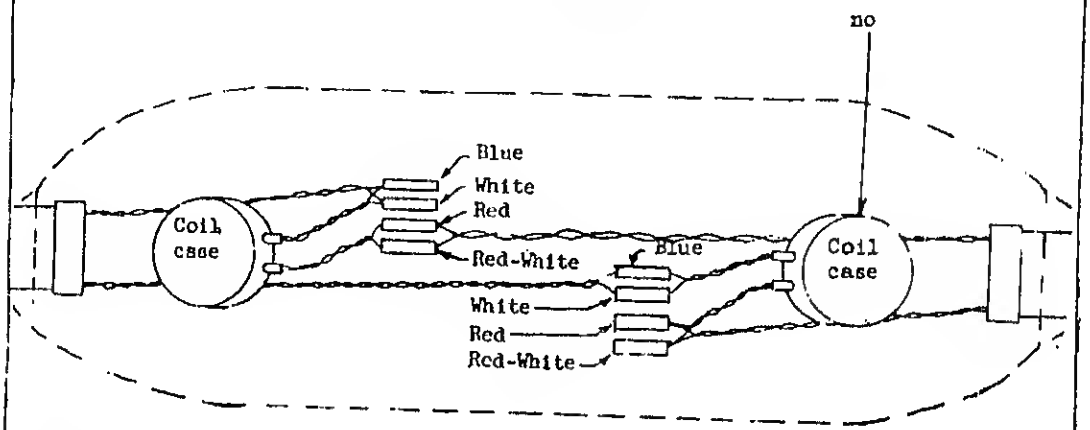
TERMINAL BLOCK, UNPROTECTED AND PROTECTED

Scale: NTS		August 25, 1960
		PG9-6, PG10-6, PG12-6

Figure 5

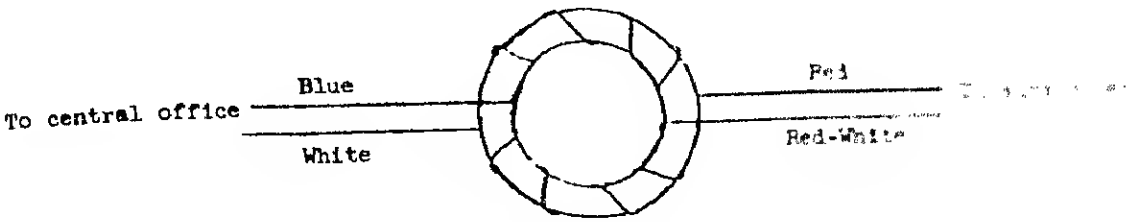


Detail of Loading Coil

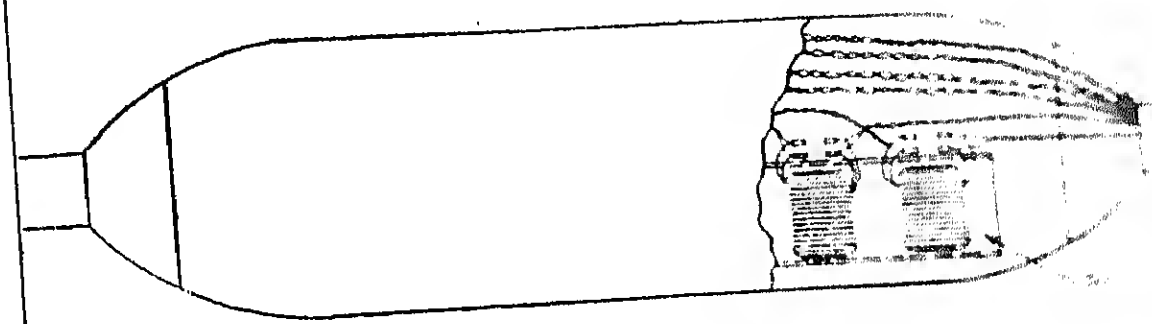


Note:

1. Procedure repeated for each additional coil.
2. For use where total number of loaded pairs does not exceed five. For six coils, refer to unit PG21-6.
3. For use on nonphantomed circuits.
4. These units include splicing labor and material.
5. These units are not to be used with plastic-insulated cables.



Detail of Loading Coil



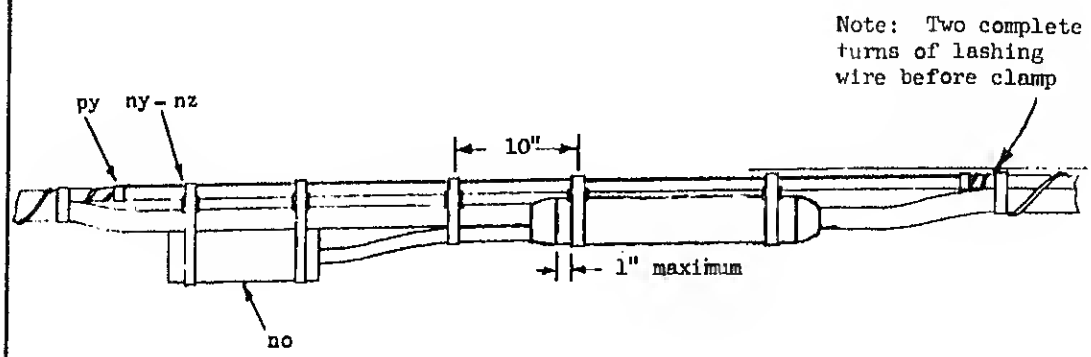
Notes:

1. For use on nonphantomed circuits. This unit includes splicing [illegible] material.
2. These units are not to be used with plastic-insulated cable[illegible].
3. For less than six coils refer to units PG21-1 to PG21-5.
4. The number of coils in each unit to be connected will be designated by the Engineer.

PG21-6, PG21-11, PG21-16, PG21-20, USED IN SPLICE ENCLOSURES OF PAPER-INSULATED CABLE ONLY FOR SUBSCRIBER LINE OR TOLL AND EAS TRUNK LOADING. COILS ARE 88 MILLIHENRY FOR THESE UNIT NUMBERS. THE COILS IN THESE UNITS ARE NON-MOISTUREPROOF WITH COLOR-CODED LEADS CONTAINED IN FIBER CASES. IF 44 MH COILS ARE DESIRED THE SUFFIX "A" SHOULD BE ADDED TO THESE UNIT DESIGNATIONS. PARTIALLY EQUIPPED UNITS ARE NOT AVAILABLE.

	RURAL TELEPHONE CONSTRUCTION PRACTICES	
	LOADING COILS, CABLE, SPLICE MOUNTED	
Scale: NTS		January 24, 19[illegible] PG21-6, -11, -16

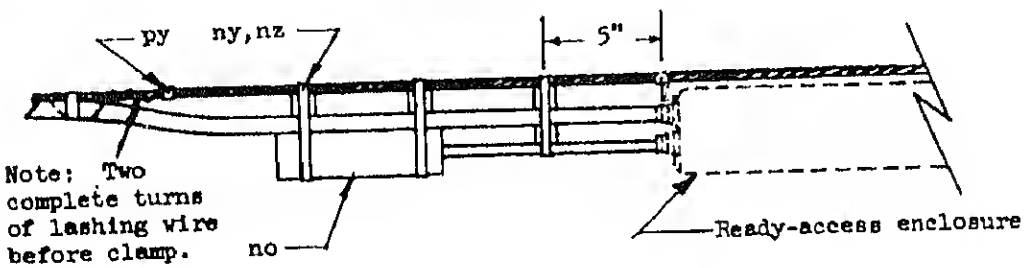
Figure 7



LOADING COIL CASE			
Assembly Unit	PG22-15	PG22-26	PG22-51
No. of Coils	15	26	51

Notes:

1. These units include splicing labor and materials, and the splicing enclosure.
2. The number of coils in each unit to be spliced will be designated by the Engineer.
3. These units are not to be used with plastic-insulated cables.



Loading Coil Case					
Assembly Unit	PG22-50P	PG22-75P	PG22-100P	PG22-125P	PG22-150P
No. of Coils	50	75	100	125	150

Notes:

1. These units include splicing labor and materials but do not include the splicing enclosure which will be specified separately as an HA-R unit.
2. The number of coils in each unit to be spliced will be designated by the Engineer.
3. These units are to be used with plastic-insulated cables only.

PG22-50P
PG22-75P
PG22-100P
PG22-125P
PG22-150P

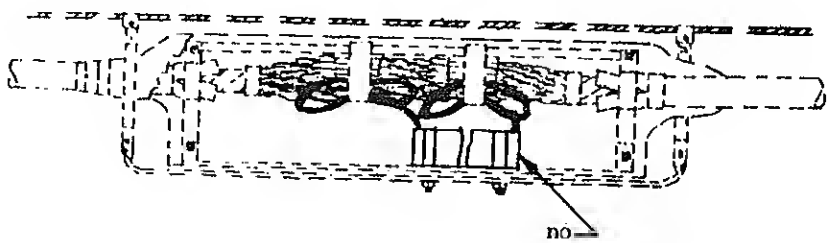
USED FOR SPLICING TO PLASTIC-INSULATED CABLE PAIRS IN READY-ACCESS ENCLOSURES, FOR SUBSCRIBER LINE OR TOLL AND EAS TRUNK LOADING. THE COILS IN THESE UNITS ARE CONTAINED IN LEAD CASES WITH PLASTIC-INSULATED CABLE STUBS. COILS ARE 88 MILLIHENRY FOR THESE UNIT NUMBERS. IF 44 MH COILS ARE DESIRED THE SUFFIX "A" IS ADDED TO THE UNIT DESIGNATIONS. IF 66 MH COILS ARE DESIRED THE SUFFIX "66" IS ADDED TO THE UNIT DESIGNATIONS; FOR EXAMPLE, "PG22-50P-66" MEANS 50 OF THE 66 MH COILS. PARTIALLY EQUIPPED UNITS ARE NOT AVAILABLE.

RURAL TELEPHONE CONSTRUCTION PRACTICES

LOADING COILS, CABLE, STRAND MOUNTED

Scale: NTS	July 18, 1960
	PG22-50P, 75P, 100P, 125P, 150P

Figure 9



Mounting in HA-R Assembly Units

Notes:

1. These loading coil units are provided with flexible leads and mounting studs. The coils shall be spliced directly to the cable pairs as specified by the Engineer.

2. The last set of digits in each unit indicates the number of 88 mh coils provided.

3. Splicing of load coil leads to aerial cable conductors shall be performed in accordance with the applicable instructions contained in REA Splicing Standard PC-2.

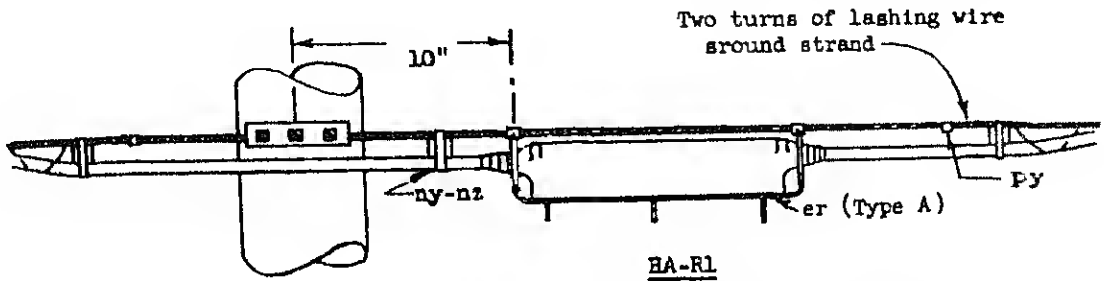
4. The PG32-25 loading coil assembly unit must be installed in the HA-R2 or HA-R6 assembly units only.

PG32-3 USED FOR SPLICING TO PLASTIC-INSULATED AERIAL CABLE PAIRS IN
PG32-12 READY-ACCESS ENCLOSURES FOR SUBSCRIBER LINE AND TOLL OR EAS
PG32-18 TRUNK LOADING. THE COILS IN THESE UNITS ARE ENCAPSULATED
PG32-25 (MOISTUREPROOF) AND ARE 88 MILLIHENRY FOR THESE UNIT NUMBERS.
IF 44 MH COILS ARE DESIRED THE SUFFIX "A" SHOULD BE ADDED TO THE UNIT DESIGNATIONS. IF 66 MH COILS ARE DESIRED THE SUFFIX "66" IS ADDED TO THE UNIT DESIGNATIONS; FOR EXAMPLE, "PG32-3-66" MEANS THREE OF THE 66 MH COILS. PARTIALLY EQUIPPED UNITS ARE NOT AVAILABLE.
THE PG32-1 ONE-COIL UNIT IS NOT ILLUSTRATED IN FORM 511.

RURAL TELEPHONE CONSTRUCTION PRACTICES
LOADING COILS, ENCAPSULATED
(FOR MOUNTING IN HA-R READY-ACCESS ENCLOSURES)

Scale: NTS		August 26, 1960
		PG32-3, -12, -18, -25

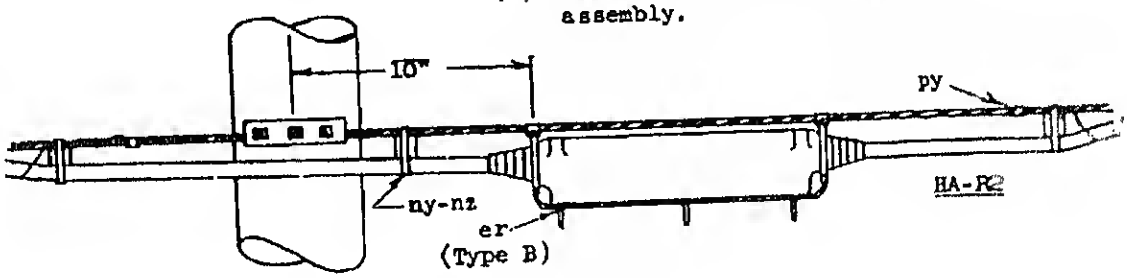
Figure 10



HA-R1

Capacity, including splicing:

1. Cables up to 1.0 inch max., and
2. (a) Four 6-pair unprotected terminal blocks, or
   (b) Four 6-pair protected terminal blocks, or
   (c) Four 3-pair loading coil assemblies, or
   (d) One 12-pair or one 18-pair loading coil assembly.



HA-R2

Capacity, including splicing:

1. Cables from 1.0 to 2.2 inches max., and
2. (a) Four 6-pair unprotected terminal blocks, or
   (b) Four 6-pair protected terminal blocks, or
   (c) Four 3-pair loading coil assemblies, or
   (d) One 12-pair, one 18-pair or one 25-pair loading coil assembly.

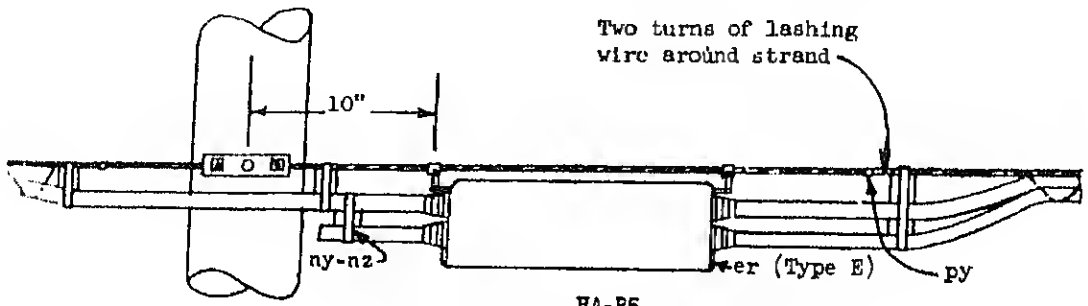
HA-R1 USED ON PLASTIC-INSULATED AERIAL CABLE AS A CONTAINER FOR A SPLICE AND OTHER ITEMS AS STATED ABOVE FOR CABLES UP TO 1.0 INCH DIAMETER.

HA-R2 USED SAME AS HA-R1 BUT FOR CABLES UP TO 2.2 INCHES DIAMETER.

RURAL TELEPHONE CONSTRUCTION PRACTICES
READY-ACCESS ENCLOSURE, STRAND MOUNTED
(Type A and Type B)

Scale: NTS	July 19, 1960
	HA-R1, R2

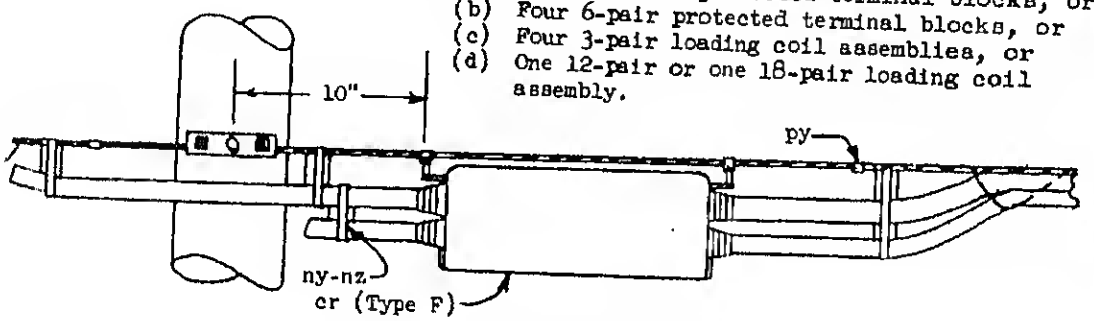
Figure 11



HA-R5

Capacity, including splicing:

1. Main and branch cables up to 1.0" max., and
2. (a) Four 6-pair unprotected terminal blocks, or
   (b) Four 6-pair protected terminal blocks, or
   (c) Four 3-pair loading coil assemblies, or
   (d) One 12-pair or one 18-pair loading coil assembly.



HA-R6

Capacity including splicing:

1. Main and branch cables from 1.0 to 2.2" max., and
2. (a) Four 6-pair unprotected terminal blocks, or
   (b) Four 6-pair protected terminal blocks, or
   (c) Four 3-pair loading coil assemblies, or
   (d) One 12-pair, one 18-pair or one 25-pair loading coil assembly.

Note:

1. These units are to be used with plastic-insulated cables only and installed in accordance with REA Splicing Standard PC-2.

HA-R5 USED ON PLASTIC-INSULATED AERIAL CABLE AS A CONTAINER FOR A SPLICE OF A MAIN AND ONE OR TWO BRANCH CABLES AND OTHER ITEMS AS STATED ABOVE FOR CABLES UP TO 1.0 INCH DIAMETER.

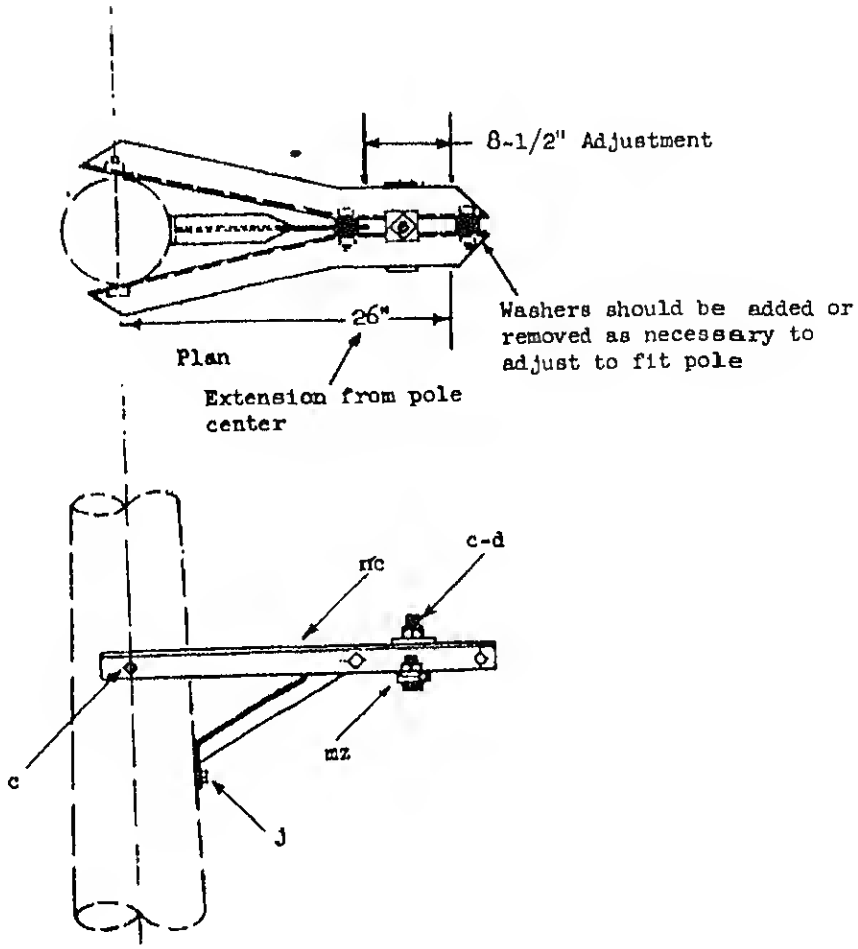
HA-R6 USED SAME AS HA-R5 BUT FOR CABLES UP TO 2.2 INCHES DIAMETER.

RURAL TELEPHONE CONSTRUCTION PRACTICES

READY-ACCESS ENCLOSURE, STRAND MOUNTED (TYPES E AND F)

Scale: NTS		August 25, 1960
		HA-R5, R6

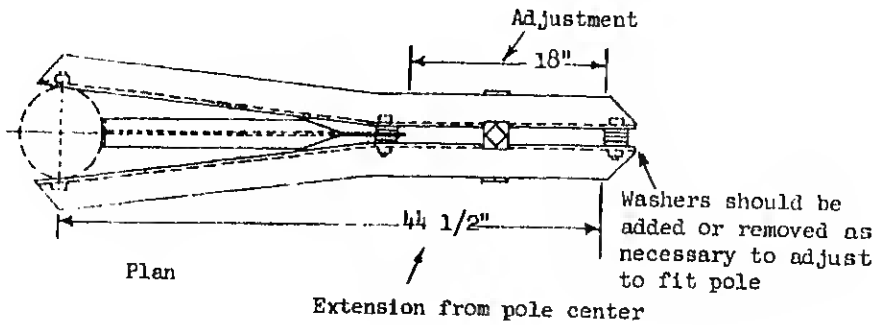
Figure 12

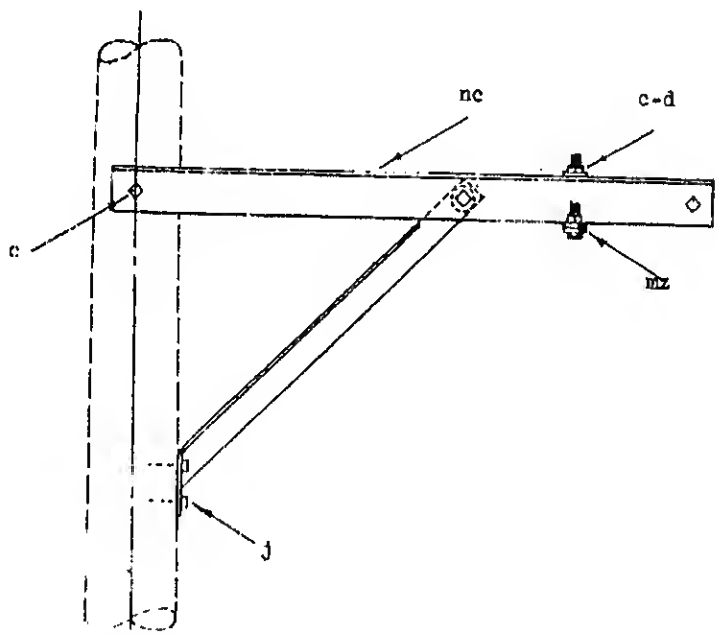


PM4 USED AS AN ADJUSTABLE EXTENSION ARM TO SUPPORT CABLE SUSPENSION STRAND A SHORT DISTANCE (LESS THAN TWO FEET) FROM A POLE TO CLEAR OBSTRUCTIONS SUCH AS TREES, BUILDINGS, OR OTHER OBJECTS WHERE THE POLE CANNOT BE LOCATED TO AVOID THE NEED.

	RURAL TELEPHONE CONSTRUCTION PRACTICES CABLE EXTENSION ARM ASSEMBLY (SHORT)	
Scale: NTS		January 24, 1957
		PM4

Figure 13



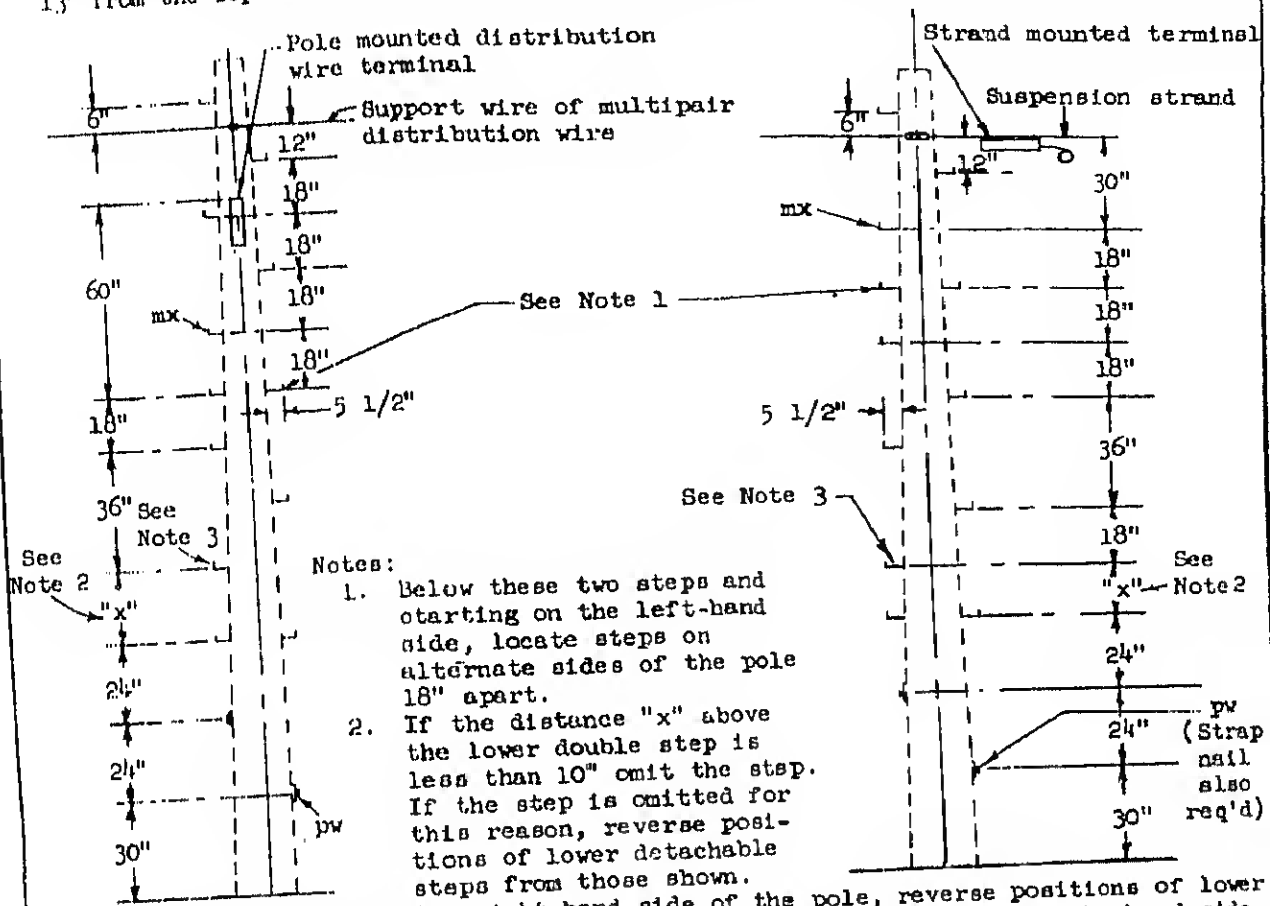


PM4A USED AS AN ADJUSTABLE EXTENSION ARM TO SUPPORT CABLE SUSPENSION STRAND A SHORT DISTANCE (LESS THAN 40 INCHES) FROM A POLE TO CLEAR OBSTRUCTIONS SUCH AS TREES, BUILDINGS OR OTHER OBJECTS WHERE THE POLE CANNOT BE LOCATED TO AVOID THE NEED.

	RURAL TELEPHONE CONSTRUCTION PRACTICES CABLE EXTENSION ARM ASSEMBLY (LONG)	
	Scale: NTS	January 24, 1957
		PM4A

Figure 14

Poles Illustrated are 25' Poles Set 5' in the Ground with the Point of Attachment 13" from the Top of the Pole in Accordance with Guide Drawing 809.



Notes:

1. Below these two steps and starting on the left-hand side, locate steps on alternate sides of the pole 18" apart.
2. If the distance "x" above the lower double step is less than 10" omit the step. If the step is omitted for this reason, reverse positions of lower detachable steps from those shown.
3. When this step falls on the right-hand side of the pole, reverse positions of lower detachable steps from those shown. When this step would be on the right-hand side but is omitted (Note 2) do not reverse detachable pole steps from positions shown.
4. When double steps occur at a point where the pole is less than 8" in diameter, place one of the steps about 1" below the opposite step.
5. Steps should be located in line with the lead but may be shifted from the in-line position when necessary to permit climbing past vertical runs and pole-mounted fixtures.
6. 3/8-inch lead holes shall be bored about 3 inches deep in cedar poles to accommodate pole steps. 1/2-inch lead holes about 4 inches deep shall be bored in all other species of poles for this purpose.
7. 3/8-inch lead holes about 2 inches deep shall be bored in all species of poles to accommodate the lag screw used in mounting detachable step plates.

PM5 USED AT POLES FOR ACCESS TO AERIAL CABLE TERMINALS EITHER POLE OR STRAND MOUNTED, ALSO AT JUNCTION POLES BETWEEN CABLE AND OPEN WIRE OR CABLE AND MULTIPAIR DISTRIBUTION WIRE. POLES SHOULD BE STEPPED BEFORE TERMINALS ARE PLACED.

RURAL TELEPHONE CONSTRUCTION PRACTICES

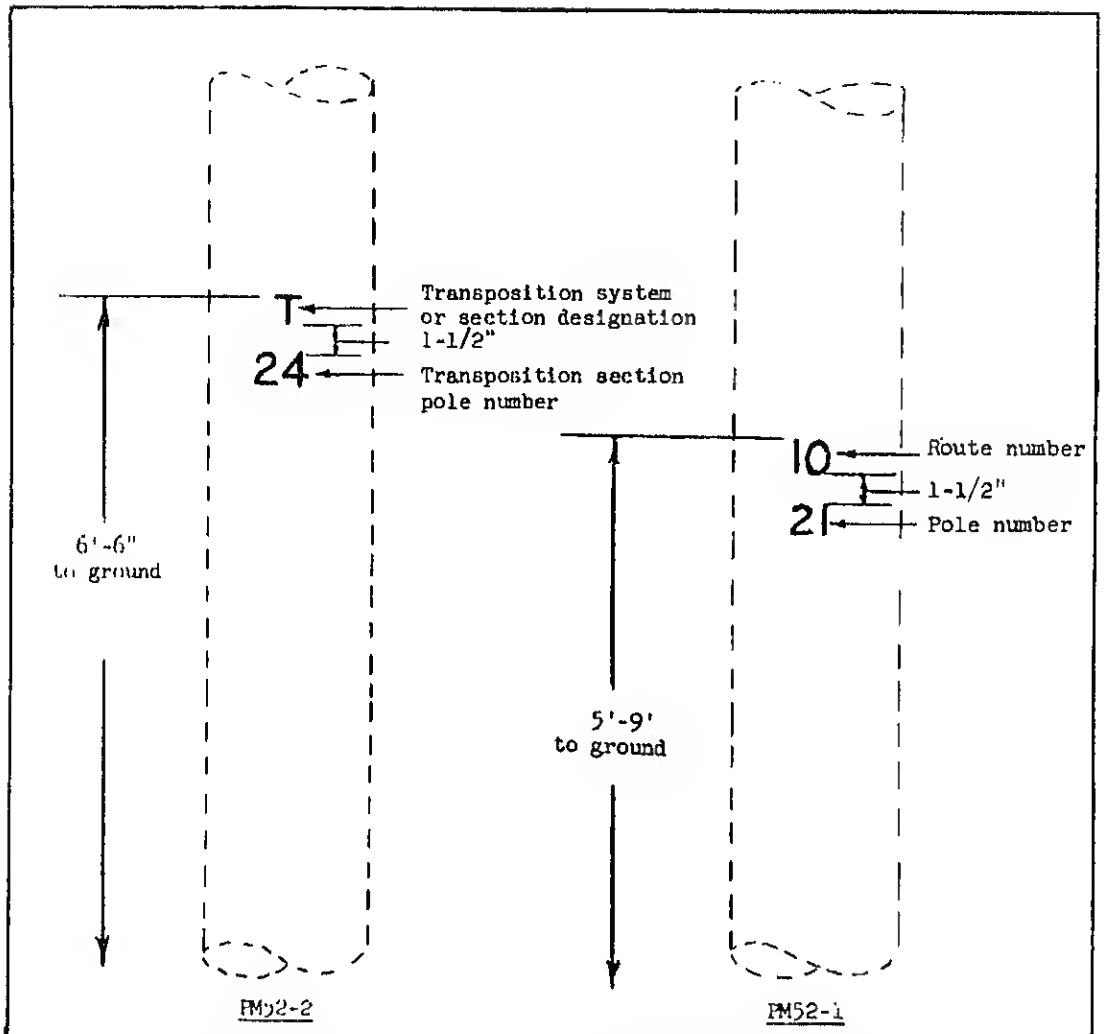
POLE STEPPING ASSEMBLY

Scale: NTS

September 16, 1960

PM5

Figure 15



PM52-1 USED ON ALL AERIAL CABLE POLES AT TERMINALS; ALSO ON ALL AERIAL CABLE POLES IN BASE RATE AREAS, EVERY FIFTH CABLE POLE AND CABLE JUNCTION POLES OUTSIDE OF BASE RATE AREAS. ROUTES AND POLES ARE NUMBERED FROM CENTRAL OFFICE WITHOUT REGARD TO BASE RATE OR CITY LIMITS.

-2 NOT APPLICABLE TO CABLE PLANT.

TE & CM-627, "ROUTE AND POLE NUMBERING."

RURAL TELEPHONE CONSTRUCTION PRACTICES

POLE MARKING

Scale: NTS		September 20, 1960
		PM52-1, -2

TABLE I

READY-ACCESS ENCLOSURE LOADING COIL CAPACITIES

Ready-Access Enclosure Assembly Unit	Number of Loading Coil Assembly Units					Total Coils in Enclosure
	PG32-1	PG32-3	PG32-12	PG32-18	PG32-25	
HA-R1	8 6 4	1 2				8 9 10
	2 3	3 4	1			11 12 15
	1	1	1	1		16 18
HA-R2	8 6 4	1 2				8 9 10
	2 3	3 4	1			11 12 15
	1 1	1	1	1	1	16 19 25
HA-R5	8 6 4	1 2				8 9 10
	2 3	3 4	1			11 12 15
	1 1	1	1	1	1	
HA-R6	Same as HA-R5					